



PROFESSIONAL AUDIO

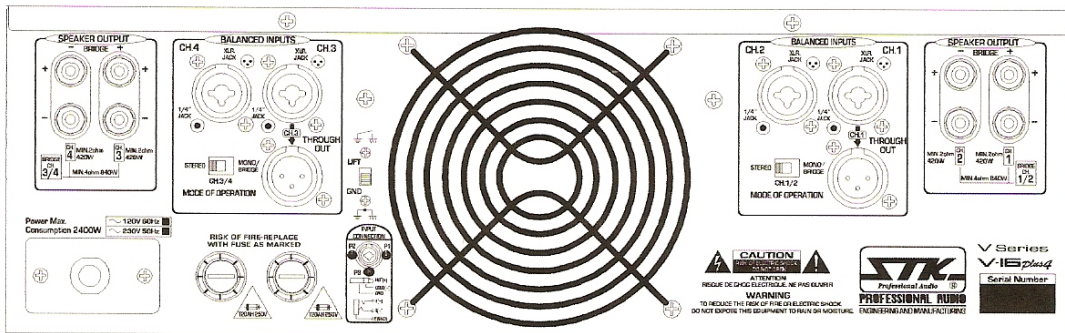
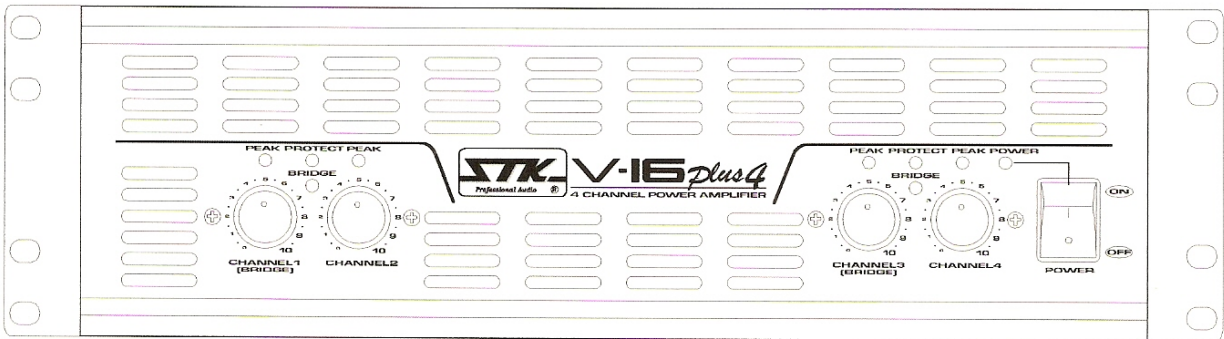
ENGINEERING AND MANUFACTURING

V-16 Plus4 4 Channel Power Amplifier

CAUTION **2Ω**
In 2 Ohm stereo or 4 Ohm bridge mono applications, maintain levels below clipping (Peak LED should not illuminate).

OWNER'S MANUAL

ENGLISH





PROFESSIONAL AUDIO
ENGINEERING AND MANUFACTURING

V-16*Plus4* 4 Channel Power Amplifier

Table Of Contents

1	Introduction.....	2
2	Important Safety Instructions.....	3
3	Warranty Information.....	4
4	Panel Description.....	5
5	Connecting Your System.....	6-9
6	System Hookup Diagram.....	10-12
7	Block Diagram.....	13
8	Specifications.....	14

I Introduction

The STK V-16plus4 is high quality, power amplifiers featuring state-of-the-art performance designed for professional sound reinforcement and installation use.

The V-16plus4 is a quad or two channel amplifier which also has the capability of being used as a high power stereo amplifier.

The V-16plus4 feature oversized heat sinks in a direct cooling system with two speed fans for trouble free operation under the most adverse conditions. While providing powerful, accurate and reliable performance along with outstanding value, your STK V-16Plus4 Power amplifier has been designed for many years of dependable service.

Please take the time to read this manual before operation so that you fully understand the features and correct use of this exceptional product.

II Important Safety Instructions

- 1. Read Instructions**– All the safety and operating instructions should be read before the appliance is operated.
- 2. Retain Instructions**– The safety and operating instructions should be retained for future reference.
- 3. Heed Warnings**– All warnings on this appliance and in the operating instructions should be adhered to.
- 4. Follow Instructions**– All instructions should be followed.
- 5. Water and Moisture**– This appliance should not be used near water– for example, near a bathtub, sink, laundry tub, in a wet basement, near a swimming pool, etc.
- 6. Heat**– This appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
- 7. Power Sources**– This appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance. If you are not sure of the type of power supply to your home, consult your appliance dealer or local power company. For appliances intended to operate from battery power, or other sources, refer to the operating instructions.
- 8. Polarization**– If the appliance is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other), this plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
- 9. Grounding**– If the appliance is equipped with a 3-wire grounding-type plug, a plug having a third (grounding) pin, this plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.
- 10. Power Cord Protection**– Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
- 11. Damage Requiring Service**– Unplug this appliance from the wall outlet and refer servicing to qualified service personnel under the following conditions:
 - a. When the power-supply cord or plug is damaged.
 - b. If liquid has been spilled, or objects have fallen into the appliance.
 - c. If the appliance has been exposed to rain or water.
 - d. If the appliance does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the appliance to its normal operation.
 - e. If the appliance has been dropped or the cabinet has been damaged.
 - f. When the appliance exhibits a distinct change in performance–this indicates a need for service.
- 12. Servicing**– Do not attempt to service this appliance yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

III Warranty Information

UNPACKING

As a part of our system of quality control, every STK product is carefully inspected before leaving the factory to insure flawless appearance.

After unpacking, please inspect for any physical damage. Save the shipping carton and all packing materials, as they were carefully designed to reduce the possibility of transportation damage should the unit again require packing and shipping.

In the event that damage has occurred, immediately notify our dealer so that a written claim to cover the damage can be initiated with the carrier. The right to any claim against a public carrier can be forfeited if the carrier is not promptly notified and if the shipping carton and packing materials are not available for inspection by the carrier. Save all packing materials until the claim has been settled.

STK Customer Service Department
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www.stkpro.com

STK LIMITED 2 YEAR WARRANTY

STK electronics are warranted to be free from defects in materials and workmanship under normal use for a period of 2 year from date of original purchase.

During that period, STK will at its option, repair or replace materials at no charge if product has been delivered to STK by an STK dealer or STK Service Center together with the original sales receipt or other proof of purchase. Warranty excludes fuses, exterior finish, normal wear, failure due to abuse, or operation outside of specified ratings. Warranty applies to original purchaser only. This warranty gives you specifically rights which vary from state to state.

For more information about warranty repair, please contact: ***Customer Service Dept., The STK Professional Audio.***

FOR YOUR RECORDS

All of us at STK thank you for your expression of confidence in STK products. The unit you have purchased is protected by a limited 2 year warranty. To establish the warranty, be sure to fill out and mail the warranty card attached to your product.

For your own protection, fill out the information below for your own records.

Model Number _____

Serial Number _____

Dealer _____

Date Of Purchase _____

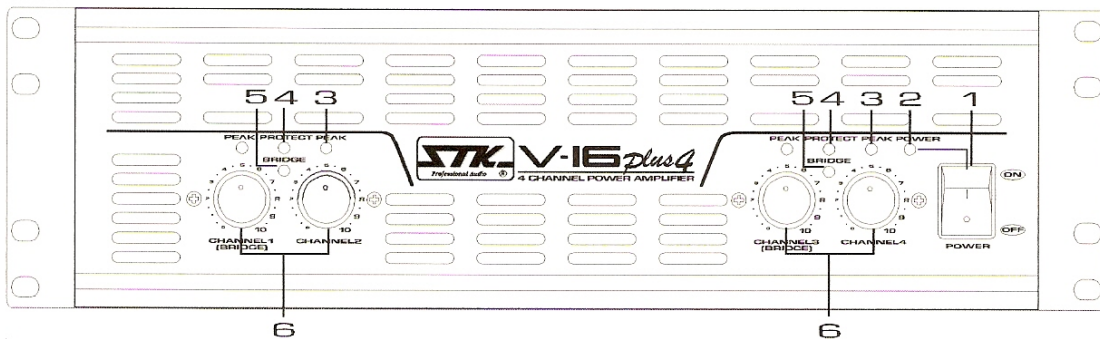
Salesman _____

Phone _____

Other Information

IV Panel Descriptions

FRONT PANEL



1. Power On/Off Switch

2. Power Indicator LED

3. Peak Indicator LED

Indicates that channel of the amplifier is being driven past normal power limits into distortion.

4. Protect Indicator LED

If protect conditions should occur, such as a short in a speaker cable or connector or excessively high operating temperatures, this LED will light and the

amplifier will stop operation until the protect condition is corrected.

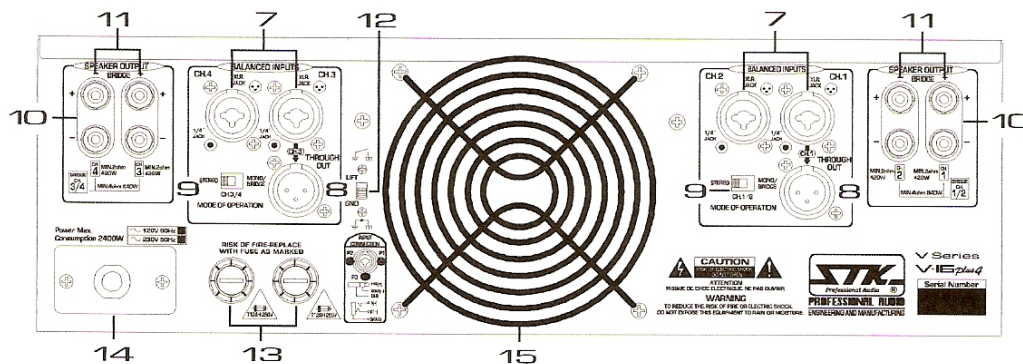
5. Mono/Bridge Mode Indicator LED

Shows when channels 1&2 or channels 3&4 are in the bridged mono mode.

6. Input Level Attenuators

Establishes the required input level for each channel. In the bridge mode, only the channel 1 and/or channel 3 attenuators are functional.

REAR PANEL



7. XLR and 1/4" Combination Inputs

Low impedance, balanced inputs accept a male XLR connector and 1/4" inputs accept a standard tip/sleeve phone plug.

8. XLR Through Inputs

Low impedance, balanced inputs accept a female XLR connector.

9. Bridge Mode Switch

Bridges inputs and outputs in pairs of channels as indicated.

10. Speaker Connections Quad

For normal stereo or multi channel operation. Channels 1 through 4.

11. Speaker Connections Bridge Mode

For operation in the bridge mode of channels 1&2. Note: See section V operation for correct method of connecting speakers to outputs.

12. Signal ground lift switch

Signal ground lift switch is used to lift the ground. See the signal ground lift switch instructions for more detail.

13. Fuse

Replace only with correct type and rating as indicated on the rear panel of the amplifier and on the specifications page of this manual. (120V: 40A 220/240V: 20A)

14. AC Power Cord

15. Cooling Air Port

Do not obstruct air flow to this opening

V Connecting Your System

A. MOUNTING

The V-16Plus4 is designed for standard 19" rack mounting. In addition, the amplifier is provided with sturdy no-skid rubber feet for secure table top or stacked operation. When rack mounting one or more amplifiers or when mounting in combination with other equipment, be sure to allow adequate front and rear ventilation to avoid possible heat related damage to your V-16Plus4 or other rack mounted items.

B. OPERATING PRECAUTIONS

Your STK V-16Plus4 power amplifier is well protected from any external faults. However, we recommend following these common-sense precautions:

1. Safety Instructions

Read and follow all of the safety warnings on page 3 of this manual and on the separate safety precautions page enclosed with the unit. Do not expose the V-16Plus4 to water or other liquids.

Always unplug the unit if water is present. Failure to do so can result in injury or death from electric shock.

2. Grounding

If your power amplifier is supplied with a three conductor, grounded power cord and plug, connect the unit only to a properly grounded mains outlet. Do not use a ground lift adapter or otherwise attempt to defeat the ground on the plug. Failure to properly ground the unit can result in damage to the amplifier or other equipment connected to it and represents a dangerous safety hazard.

3. Line Voltage

Operate from AC mains not more than 5% above or below the specified line voltage. Failure to comply may invalidate your warranty.

4. Pre-Connection Caution

Always switch off the power and set all the level controls to minimum before making any connections.

This will eliminate any chance of unexpected, loud audio transients that could damage your speaker systems.

C. V-16Plus QUAD OPERATION

The basic method of operation is recommended for 4 Ohm applications. Each channel provides a separate and discrete signal at the speaker outputs according to the signal received at the inputs.

The V-16Plus4 offers four separate channels for quad operation.

1. Set Mono/Bridge switch

Set the mono/bridge switch on the rear panel to the stereo position. When the power is on, the mono/bridge LED on the front panel will not light. If the LED illuminates, you have the switch in the wrong position.

Change the switch before continuing.

2. Input Connections

With the power off, connect your input source lines to channels 1 through 4.

3. Connect Speaker Systems

Connect speaker systems to speaker outputs. Only channels 1 and 2 are shown. Connect channels 3 and 4 in the same manner on the V-16Plus4. The total speaker load for each channel must be at least 4 Ohms.

The amplifier will not operate at load conditions lower than 4 Ohms per channel.

Figure.

4. Level Controls

With all level controls set to 0, switch the power on. Apply a nominal signal to the inputs. The level of the input signal should be about as high as you will ever need it to be. This way, it will be as far above the amplifier's noise floor as possible, ensuring an excellent performance signal to noise ratio. Adjust the input level control for each channel to achieve the desired maximum listening level or until the clip LED flashes momentarily during program peaks, whichever is lowest. Having set the levels in this manner will render a clean signal at any level as long as the clip LED is not constantly on. Remember, when the clip LED lights, there is distortion present in the amplifier's output section.

Connecting Your System

D. MONO/BRIDGE OPERATION

This method of operation bridges inputs and outputs and can be used with 8 ohm or higher applications only. This allows the V-16Plus4 to be used as a high power, stereo amplifier instead of quad operation. By bridging only one side of the V-16Plus4 (I.E. channels 3 & 4), the amplifier becomes a three channel amplifier. The configuration is then 1 channel producing 620watts at 8 ohms and 2 channels of 310 watts at 4 ohms.

1. Set Mono/Bridge switch

Set the switch on the rear panel for channel you wish to operate in the bridge mode to the mono/bridge position. When the power is on, the mono/bridge LED on the front panel will light. If the LED does not illuminate, you have the mono/bridge switch in the wrong position. Change the appropriate switch before continuing.

2. Input Source Lines

With the power off, connect your input source lines to channels 1 and 3.

3. Speaker Outputs

Connect speaker systems to speaker outputs only. The total speaker load for each channel must be at least 4 ohms or above. If you try to operate at less than 4 Ohms in the bridge mode, the amplifier will go into protect mode and stop operation until you correct the load condition.

4. Level Controls

With all level controls set to 0, switch the power on. Apply a nominal signal to the inputs.

The level of the input signal should be about as high as you will ever need it to be. This way, it will be as far above the amplifier's noise floor as possible, ensuring an excellent performance signal to noise ratio.

Adjust the input level controls for channel 1&3 to achieve the desired maximum listening level or until the clip LEDs flash momentarily during program peaks, whichever is lowest. Having set the levels in this manner will render a clean signal at any level as long as the clip LEDs are not constantly on. Remember, when the clip LEDs light, there is distortion present in the amplifier's output section.

FIGURE 3. Speaker Connection Guide For Stereo Operation

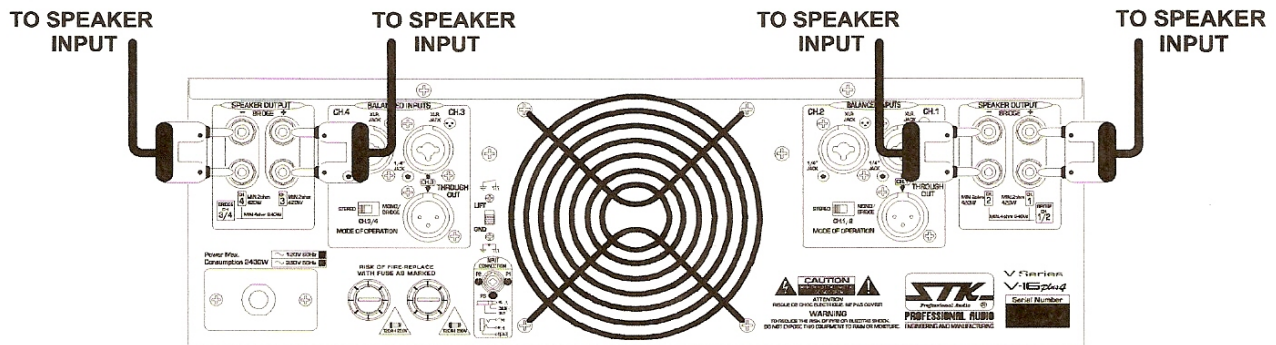
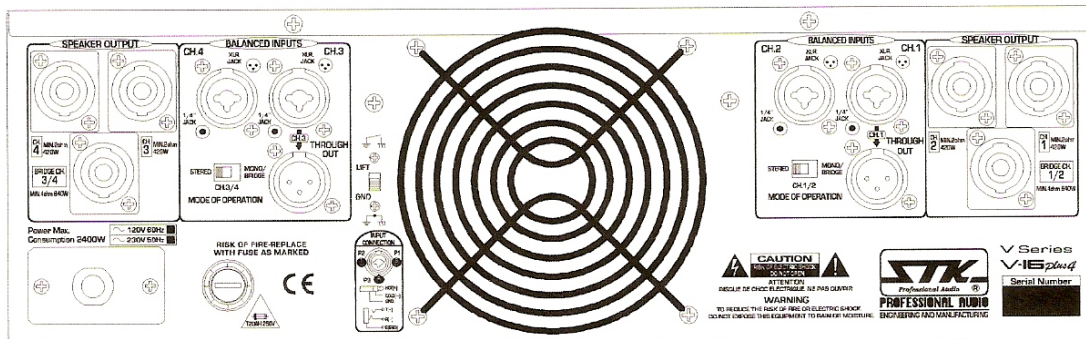


FIGURE 4. Speaker Connection Guide For Mono Bridge Operation

Connecting Your System

Speakon Type



● Speakon Connections

Speakon connectors are purpose-built for low voltage, high current applications.

Each connector incorporates two pair of conductors, labeled 1+, 1-, 2+ and 2-.

By convention, single signals are sent on 1+ and 1-. The second pair, 2+ and 2-, are used only if there is a second unique signal present at the connector.

When attaching NL4FC mating connectors, be sure to insert the connector to its full depth, then turn the connector 45° clockwise to lock it in place.

● Connection Table

Output Function	Connector	Pins
Left	A	1+, 1-
Right	B	1+, 1-
Bridged Mono	Mono	1+, 1-

● Connection for Stereo(Two-Channel) Operation

Connect the left speaker's positive terminal to the 1+ pin of output speakon connector A.

Connect the left speaker's negative terminal to the 1- pin of output speakon connector A.

Note that the speaker load impedance must be 4 ohms or greater.

Connect the right speaker's positive terminal to the 1+ pin of output speakon connector B.

Connect the right speaker's negative terminal to the 1- pin of output speakon connector B.

Note that the speaker load impedance must be 4 ohms or greater.

● Connection For Bridged Mono Operation.

Connect the speaker's positive terminal to the 1+ pin of mono speakon output connector.

Connect the speaker's negative terminal to the 1- pin of mono speakon output connector.

Note that the speaker load impedance must be 8 ohms or greater since, in this configuration, each amplifier output is presented with half the mono bridged load

E. INPUT/OUTPUT CONNECTIONS

The STK V-16Plus4 power amplifier is designed to be as versatile as possible. The following descriptions of the input and output connections are designed to help you maximize the unit's potential.

1. XLR Input Jacks

Electronically balanced inputs accepts a standard XLR male connector. Pin1=ground, Pin2=hot or positive(+).

Pin3=cold or negative(-).

Connecting Your System

2. 1/4" Phone Input Jacks

Accept an unbalanced line level signal. The unbalanced line uses a normal tip/sleeve connection. The tip is positive and the sleeve is negative/ground



3. Speaker Outputs

Speaker connections are dual banana MDP/bare wire binding posts that will accept a standard dual banana plug or bare wire. Either method provides a safe and reliable connection capable of transferring high power signals if properly connected. To avoid ANY possible shock hazard, the power amplifier should be disconnected from the AC power source before making any connections. When connecting your speakers using either method, be sure to pay close attention to proper polarity. Although connecting your speaker systems out of phase using the wrong polarity will not damage your speakers, it will affect the quality of sound. When using bare wire connections, be sure that your connections are "clean." If any strands of wire from one connector are allowed to touch the adjacent connector, damage to your amplifier and sound system could occur.

F. POWER REQUIREMENTS

Your STK V-16Plus4 is pre-wired at the factory for the correct line voltage(120V or 220-240V) and is furnished with the appropriate power cord and fuse. If fuse replacement is necessary, always use a fuse with the exact type and rating as specified on the specifications page of this manual or as indicated on the unit itself.

G. FRONT PANEL INDICATORS

The front panel of the V-16Plus4 has several indicators to alert you to the status of various operating conditions. Knowing what these indicator LEDs are telling you will help you to use your STK amplifier.

1. Clip LED

A clip LED for each channel indicates that your signal level is so strong that there is distortion at the output of that channel. While it is normal for the clip LED to flash during program peaks, the LED should not remain constantly lit during operation. If it does, most likely you will hear the results in the form of distorted sound that can be damaging to your speaker systems. In this case, reduce the signal level by lowering the input level control for the channel that is clipping or reduce the level at the source. Note that when using the amplifier in the mono/bridge mode, both clip LEDs of the bridged channels will operate simultaneously.

2. Mono/Bridge LED

The mono/bridge LED will light when you have set the rear panel switch to the mono/bridge position for bridged operation. Always make sure that this switch is in the correct position and that all speaker connections have been made correctly for the mode of operation you wish to use before powering up the amplifier.

3. Protect LED

The protect LED indicates that there is a problem either in the amplifier's external connections, load or temperature conditions or its internal functions. If one of these situations occurs, the amplifier senses the problem and automatically switches into its "protect mode." The protect LED will light to warn you of the trouble and the amplifier will stop working. If this happens, switch off the amplifier and refer to the Trouble Shooting Guide at the end of this manual. If you feel that you have been able to correct the fault condition that caused the amplifier to go into the protect mode, restart the amplifier.

If the protect LED remains lit when attempting to resume amplifier operation, do not use the amplifier.

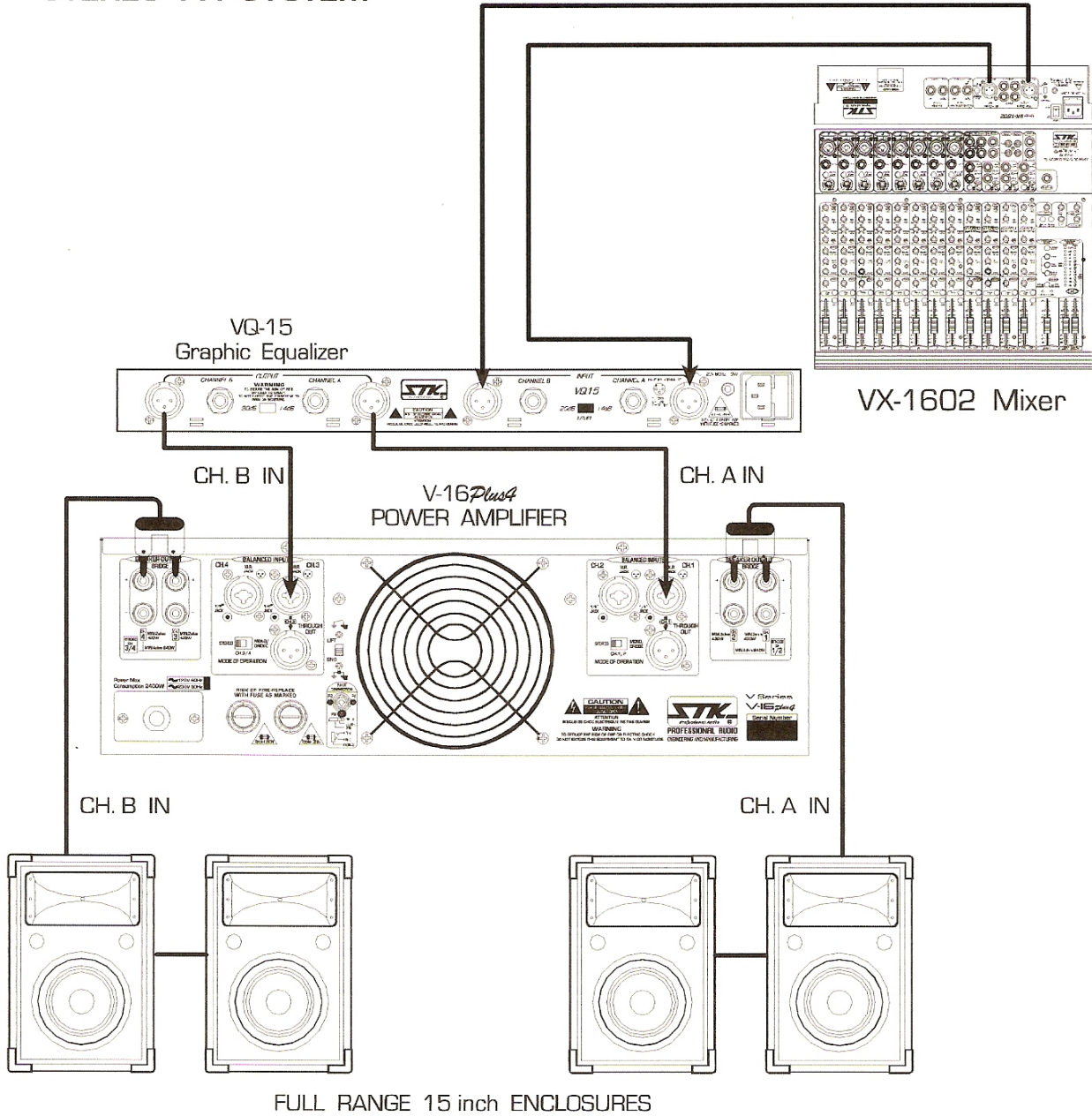
Refer the amplifier to an authorized STK service facility or contact your dealer for help.

4. Power Indicator LED

The power indicator LED indicates that the power switch is in the on position, and that AC mains power is applied.

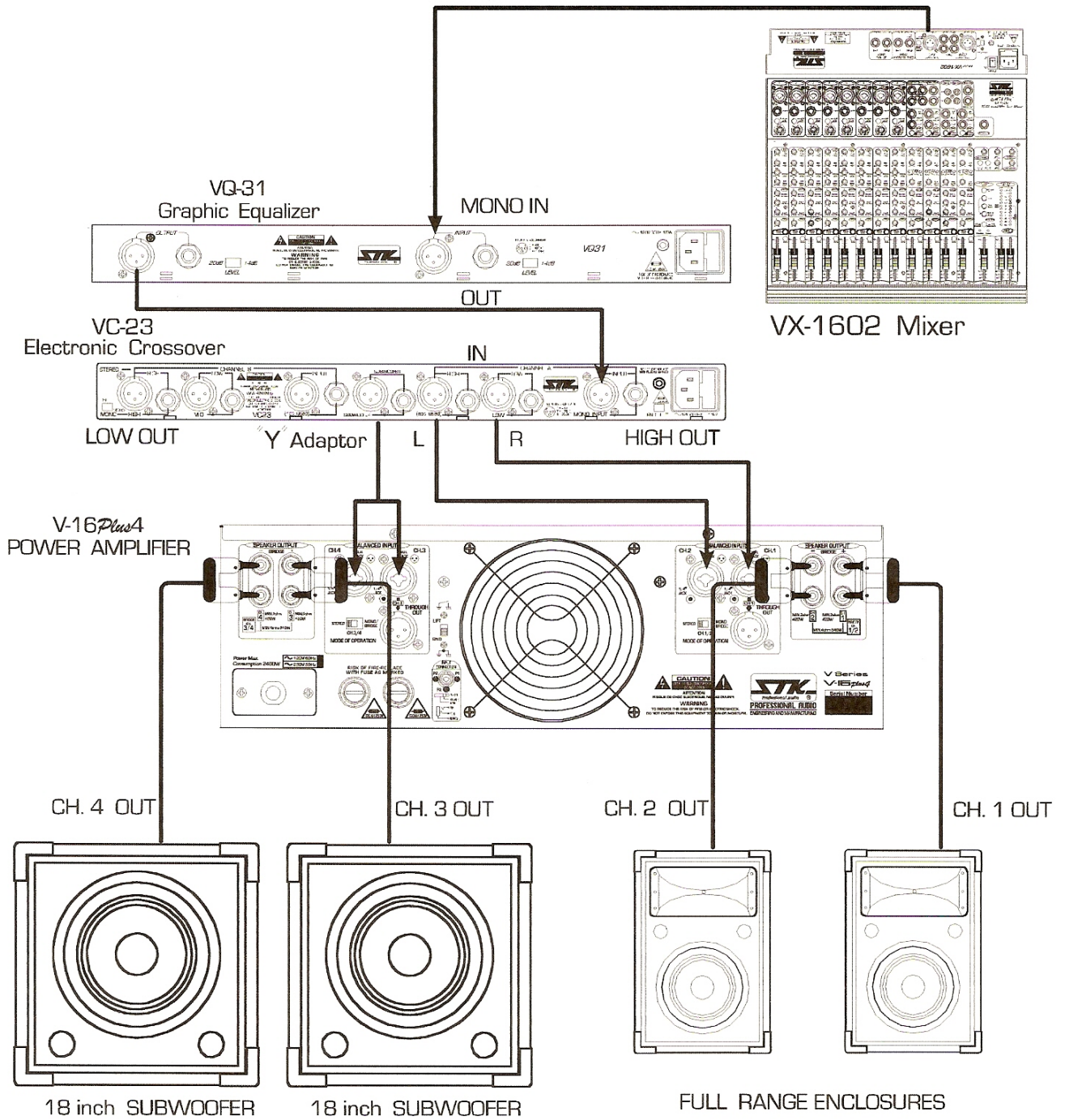
VI System Hookup Diagram

STEREO PA SYSTEM



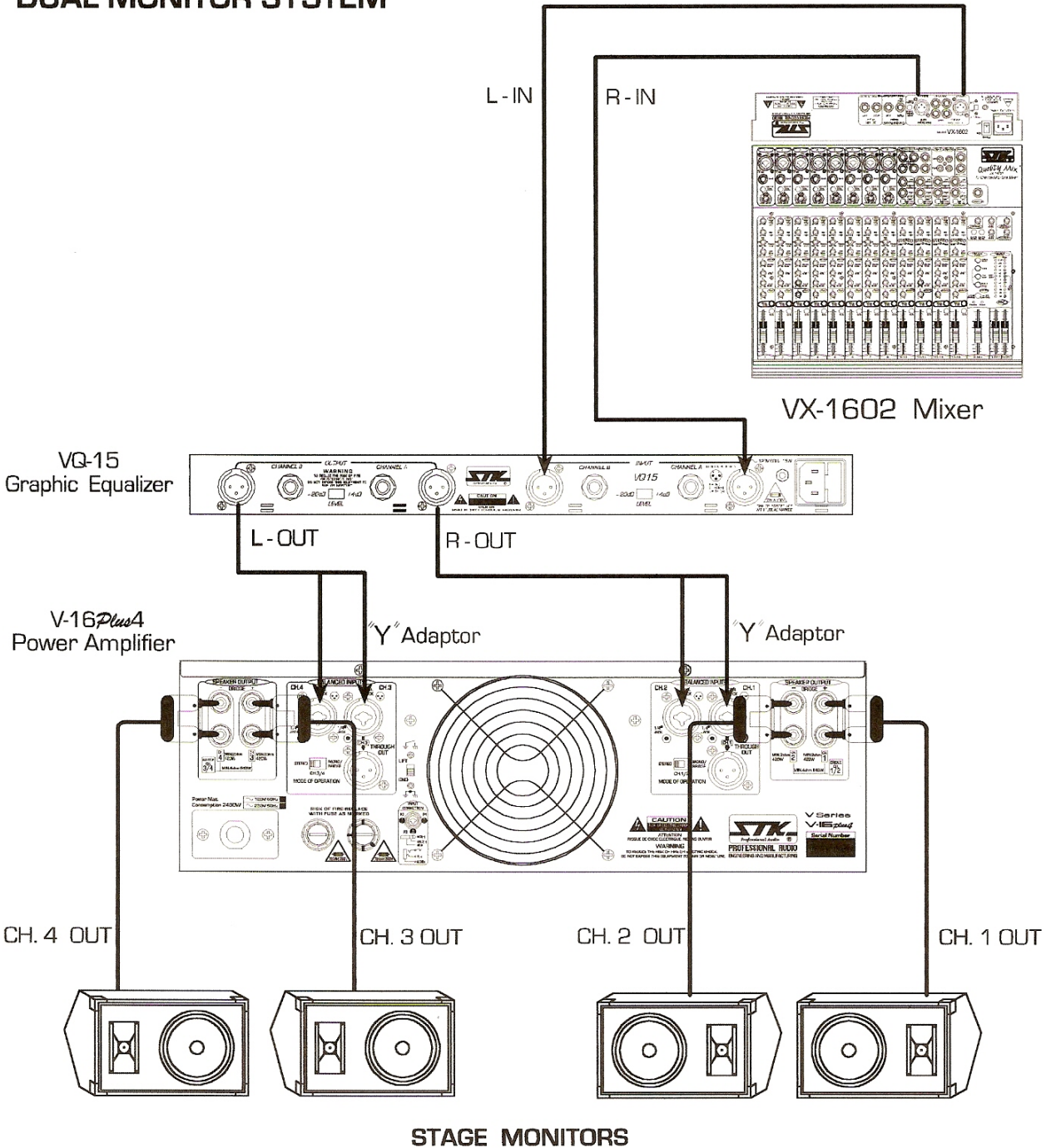
System Hookup Diagram

BI AMP PA SYSTEM

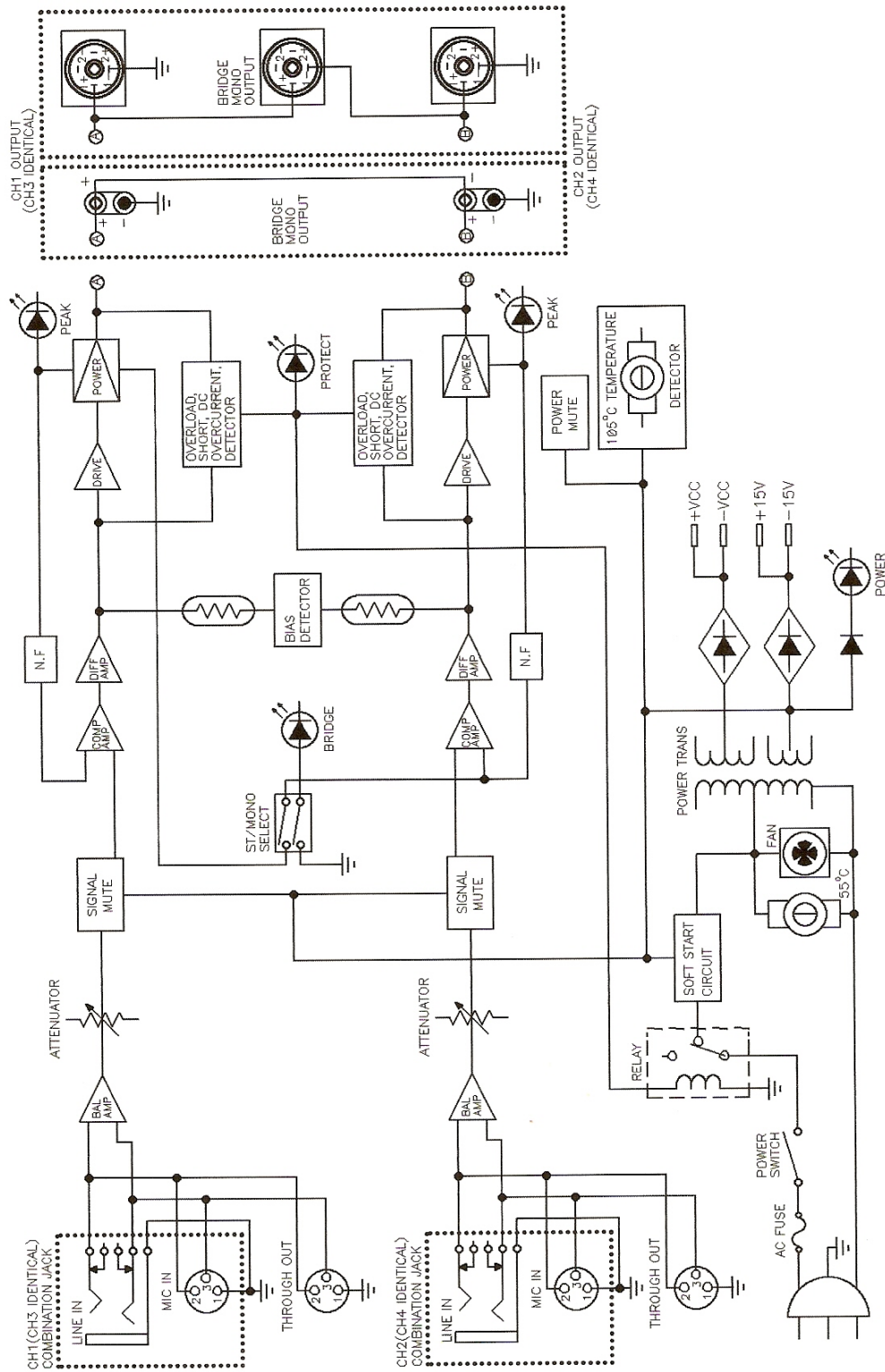


System Hookup Diagram

DUAL MONITOR SYSTEM



VII Block Diagram



VIII Specifications

ModelZ	V16Plus4
Output Power EIA: 1kHz@ 1% THD	4 x 210 W 4 x 330 W 4 x 420 W
8 Ω per channel 4 Ω per channel 2 Ω per channel	
FTC:20Hz-20kHz@0.1% THD.	4 x 200 W 4 x 320 W
8 Ω per channel 4 Ω per channel	
Bridge Mode	2 x 600 W 2 x 840 W
8 Ω , 20Hz-20kHz@0.1% THD. 4 Ω , 1kHz@ 1% THD	
Total Harmonic Distortion f=1kHz, Power Output	Less than 0.05%
IMD-SMPTE 4Ohm,1/2 Power f=60Hz+7kHz, 4:1	$\leq 0.1\%$
Frequency Response ± 1 dB, 1 watt output at 8ohm	20Hz - 30kHz
Power Bandwidth -3dB, at 10dB below rated output	20Hz - 50kHz
Noise A-weighting filter,8 Ω dual mode	≥ 100 dB
Residual Noise LPF. VR min.	≤ -70 dB
Damping Factor Dual mode, 8 Ω , 50 Hz,	≥ 300
Slew Rate 8 Ohm, 1 kHz, Full swing	49V/sec
Channel Separation 8 ohm, 1kHz, Rated output	≥ 70 dB
Input Sensitivity (Ref.1kHz, ± 0.15 dB) Dual Mode, 4 Ω Dual Mode, 8 Ω	2.26dBu (1.005V rms) 3.5dBu (1.159V rms)
Input Impedance	15 Kohms/UNBAL, 30 Kohms/BAL
Indicators	Power (Green) Protect (Red) Clip (Red) Bridge (Green)
Controls Front Rear	AC Switch, CH.1, CH2, CH3 and CH4 level knob. Stereo/Mono Mode Switch
DC offset voltage	$\geq DC10$ mV
Protection Circuit	1) Short Circuit, 2) Current Limit, 3) Thermal Cutoff, 4) DC fault, 5) Power up/down transients, 6) AC line fuse, 7) clip limiting, 8) DC-fault power supply shutdown,
Power Consumption Normal operation: max power@4 Ω , per channel	2400W
Fuse 110-120V 220-240V	2xT20AH T20AH
Connector	Input: Combo XLR & 1/4 TRS, tip and pin 2 positive. Output: Touch-Proof binding posts (Option: speakon jack)
Dimension (WxDxH)	482.5x460x132 mm
Weight	49.50 lbs/ 22.5 Kg

Note: Specifications subject to change without notice.

Owner's Manual for The STK V-16Plus4 2Channel Power Amplifier.



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